8. The fabrication method for a semiconductor device of claim **7**, wherein

the wide band-gap semiconductor is silicon carbide.

9. The fabrication method for a semiconductor device of claim **8**, wherein

the substrate is a silicon carbide substrate, and the principal surface is a silicon plane.

10. A semiconductor device comprising:

a substrate;

a semiconductor layer provided on a principal surface of the substrate;

a trench provided in the semiconductor layer;

a gate insulating film provided on a side of the trench, a bottom of the trench, and a periphery of the trench; and

a conductive film provided on the gate insulating film to fill the trench and extend on the periphery of the trench,

wherein

the gate insulating film has a first insulating film provided on the side of the trench and a second insulating film provided on the bottom of the trench and the periphery of the trench,

the thickness of portions of the gate insulating film provided on the bottom of the trench and the periphery of the trench is larger than that of a portion of the gate insulating film provided on the side of the trench,

a portion of the second insulating film provided on the periphery of the trench has an inclined portion that becomes gradually thicker from the trench-side end, and the inclination angle of the inclined portion with respect to the principal surface of the substrate is 45±5 degrees, and

the conductive film is in contact with a portion of the first insulating film formed on the side of the trench.

11. The semiconductor device of claim **10**, wherein

the first insulating film is formed on the side of the trench and the bottom and periphery of the trench.

12. The semiconductor device of claim **11**, wherein

the position of the trench-side end of the portion of the second insulating film provided on the periphery of the trench corresponds with the position of a portion of the first insulating film corresponding to a top edge of the trench.

13. The semiconductor device of claim **11**, wherein

the spacing between the trench-side end of the portion of the second insulating film provided on the periphery of the trench and a portion of the first insulating film corresponding to a top edge of the trench is 30% or less of the thickness of the portion of the second insulating film provided on the periphery of the trench.

14. The semiconductor device of claim **11**, wherein

a top end portion of the trench is rounded, and

the angle of a tangent at a portion of the top end portion the trench that is in contact with the trench-side end of the second insulating film with respect to the principal surface of the substrate is the same as the inclination angle of the inclined portion.

15. The semiconductor device of claim **11**, wherein

a top end portion of the trench is rounded, and

the angle of a tangent at a portion of the top end portion the trench that is in contact with the trench-side end of the second insulating film with respect to the principal surface of the substrate is smaller than the inclination angle of the inclined portion.

16. The semiconductor device of claim **10**, wherein

the semiconductor layer has a drift region of a first conductivity type and a body region of a second conductivity type provided on the drift region,

the bottom of the trench is located below an interface between the drift region and the body region and above the bottom of the drift region, and

the top surface of the portion of the gate insulating film formed on the bottom of the trench is located below the interface between the drift region and the body region.

17. The semiconductor device of claim **10**, wherein

the semiconductor layer is made of a wide band-gap semiconductor.

18. The semiconductor device of claim **17**, wherein

the wide band-gap semiconductor is silicon carbide.

19. The semiconductor device of claim **18**, wherein

the substrate is a silicon carbide substrate, and the principal surface is a silicon surface.

20. The semiconductor device of claim **10**, wherein

the thickness of the portion of the gate insulating film provided on the periphery of the trench is larger than that of the portion of the gate insulating film provided on the bottom of the trench.

* * * * *